



Seattle Pacific University
Digital Commons @ SPU

Clinical Psychology Dissertations

Psychology, Family, and Community, School of

Spring June 1st, 2018

The Impact of Bully Victimization and Substance Use on Suicidal Behavior in Sexual Minority Youth

Ashley Christine Estoup
Seattle Pacific University

Follow this and additional works at: https://digitalcommons.spu.edu/cpy_etd

 Part of the [Clinical Psychology Commons](https://digitalcommons.spu.edu/cpy_etd)

Recommended Citation

Estoup, Ashley Christine, "The Impact of Bully Victimization and Substance Use on Suicidal Behavior in Sexual Minority Youth" (2018). *Clinical Psychology Dissertations*. 34.
https://digitalcommons.spu.edu/cpy_etd/34

This Dissertation is brought to you for free and open access by the Psychology, Family, and Community, School of at Digital Commons @ SPU. It has been accepted for inclusion in Clinical Psychology Dissertations by an authorized administrator of Digital Commons @ SPU.

The Impact of Bully Victimization and Substance Use on Suicidal Behavior in Sexual Minority
Youth

Ashley C. Estoup

A dissertation submitted in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

In

Clinical Psychology

Seattle Pacific University

School of Psychology, Family, & Community

June 2018

Approved by:

David G. Stewart, Ph.D.
Chief of Psychology, Cambridge Health
Alliance
Member of the Faculty, Harvard Medical
School
Dissertation Chair

Amy Mezulis, Ph.D.
Associate Professor, Clinical Psychology
Committee Member

Munyi Shea, Ph.D.
Associate Professor, School of Education
Committee Member

Reviewed by:

Amy Mezulis, Ph.D.
Chair, Department of Clinical Psychology

Katy Tangenberg, Ph.D.
Dean, School of Psychology, Family, &
Community

Table of Contents

List of Figures.....	iv
List of Tables.....	v
Dedication.....	vi
Acknowledgement.....	vii
Abstract.....	viii
Chapter I.....	1
Introduction and Literature Review.....	1
Purpose.....	1
Relationship Between Bully Victimization and Suicidality.....	3
Relationship Between Bully Victimization and Substance Use.....	6
Relationship Between Substance Use and Suicidality.....	8
Substance Use a Mediator Between Bully Victimization and Suicidality.....	9
Sexual Orientation as a Moderator of these Relationships.....	10
The Current Study.....	13
Chapter II.....	16
Method.....	16
Procedure.....	16
Participants.....	17
Sample Size, Power, and Precision.....	17
Measures.....	17
Chapter III.....	20
Results.....	20

Data Screening.....	20
Statistical Analyses.....	22
Main Analyses.....	23
Chapter IV.....	28
Discussion.....	28
Interpretation of Results.....	28
Implications.....	30
Limitations.....	34
Future Directions.....	35
References.....	37

List of Figures

- I. Figure 1: Graphical representation of the simple mediation model.....14
- II. Figure 2: Graphical representation of the full moderated mediation model.....15

List of Tables

I.	Table 1: Variable correlations.....	22
II.	Table 2: Differences between sexual minority and heterosexual youth on study variables.....	23
III.	Table 3: Direct and indirect effects of bully victimization on suicidality through substance use.....	25
IV.	Table 4: Results of moderated mediation model.....	27

Dedication

I dedicate this manuscript to my parents who have provided me with unrelenting support throughout my entire graduate career. I truly do not know where I would be without them.

I'd also like to dedicate this manuscript to Dr. David Stewart who helped make it possible.

Acknowledgement

I'd first like to thank and acknowledge all the students who have completed the Youth Risk Behavior Surveillance System survey and the Centers for Disease Control and Prevention for making the data publically available. It is because of you all that this, and so many more, projects are possible. It is my sincere hope that studies such as this one improve the quality of care that is provided to suffering youth. I'd also like to thank my friends and family for putting up with the occasional anxiety ridden days and nights that are so often accompanied with graduate school and completing a dissertation. Lastly, a very special thanks to Dr. David G. Stewart and the late and great Stewart RVT. Dave always believed in my ability to succeed, even at times where I felt like a bit of an imposter. I appreciate his continued support and guidance, even after he moved on from Seattle Pacific University, more than I could ever put into words.

Ashley C. Estoup

Word Count: 347

Abstract

Bully victimization has been shown to be associated with a variety of problems in adolescence. Adolescent bully victims endorse higher rates of substance use, suicidal ideation, and suicide attempts. One possible explanation is that adolescents who are bullied use substances to cope with victimization and turn to suicidal behaviors when this coping mechanism proves ineffective. Sexual orientation is one variable that is believed to moderate these relationships. Non-heterosexual youth are more likely to be victimized by peers, engage in substance use, and experience suicidality. The purpose of this study was to explore the relationships between bully victimization, substance use, suicidality, and sexual orientation in a national sample of adolescents. I hypothesized that bully victimization will be positively associated with suicidality and substance use will mediate this relationship. I also predicted sexual orientation would moderate all relationships. Data was drawn from the Youth Risk Behavior Surveillance System survey, a large-scale survey measuring health-risk behaviors contributing to death and disability in youth. The survey contains questions about frequency of bully victimization, engagement in substance use, and prevalence of suicidal behaviors. Participants are also asked about a variety of demographic variables, including sexual orientation. Adolescents in this study completed the survey in 2015. Half of the participants were male, with a mean age of 16. The sample was representative of the U.S. population, with 45.0% identifying as non-Hispanic White, 33.5% as Hispanic, 10.9% as non-Hispanic Black, and 10.7% identifying as Other. A moderated mediation model revealed that the indirect effect of bully victimization through substance use to suicidality was significant for heterosexual ($b = .029$, $SE = .003$, $CI_{99} = .022, .038$) and sexual

minority ($b = .040$, $SE = .009$, $CI_{99} = .020, .066$) adolescents. Sexual orientation moderated the relationships between bully victimization and substance use and bully victimization and suicidality. It did not moderate the relationship between substance use and suicidality. Results suggest that sexual minority youth are at an increased risk for substance use and suicidality when victimized. Results also highlight the importance of addressing bully victimization when providing mental health and substance use services to adolescents.

Keywords: suicidality, bully victimization, sexual orientation, substance use, adolescents

CHAPTER I

Introduction and Literature Review

Purpose

The purpose of this study is to examine the associations between bully victimization, substance use, suicidality, and sexual orientation in a large, nationally representative sample of adolescents. Suicidality, a broad term encompassing suicidal ideation, suicide attempts, and suicide completions, is extremely common among adolescents. Current studies have found that up to 60% of adolescents experience suicidal ideation during their high school years (Lewinsohn, Rohde, & Seeley, 1996). Along with this high prevalence rate, suicide is currently the third leading cause of death among adolescents (Kim & Leventhal, 2008). Due to the high prevalence rate and severity of suicidality in youth, research examining the antecedents of suicide among this population is paramount.

Bully victimization and substance use have both been shown to positively predict suicidal ideation, attempts, and completions (Garofalo, Wolf, Wissow, Woods, & Goodman, 1999; Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, & Rantanen, 1999; Kandel, Raveis, & Davies, 1991; Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2007). While a majority of studies examining the relationships between bully victimization and suicide and substance use and suicide are cross-sectional in nature, longitudinal studies allowing for the determination of causal claims have recently been conducted (Copeland, Wolke, & Costello, 2013; Kelly, Cornelius, & Clark, 2004; Klomek, Sourander, & Gould, 2010). For example, Copeland and colleagues (2003) implemented a longitudinal study following over 1,400 participants for 13 to 17 years.

Results indicated that bully victimization in childhood resulted in significantly higher rates of suicidality in both adolescence and young adulthood.

While studies have shown that bully victimization and substance use are associated with suicidality, some research suggests substance use may be one mechanism that explains the relationship between bully victimization and suicidality (Kelly, Cornelius, & Clark, 2004; Litwiller & Brausch, 2013). For example, Litwiller and Brausch (2013) found that substance use positively predicted suicidal behavior and partially mediated the relationship between bully victimization and suicidality. While a few studies have found similar results, the research is sparse and continued examination is needed. Although many studies have examined the relationships between bully victimization and suicide, bully victimization and substance use, and substance use and suicide, few have examined the mediating role substance use may have on the relationship between bully victimization and suicidality.

Sexual minority youth, youth that identify as gay, lesbian, bisexual, or questioning, are one sub-population of adolescents who have been found to be at an increased risk for bully victimization, substance use, and suicidality (Berlan, Corliss, Field, Goodman, & Austin, 2010; Marshal, Friedman, Stall, & Thompson, 2009; Noell & Ochs, 2001; Remafedi, French, Story, Resnick, & Blum, 1998; Williams, Connolly, Pepler, & Craig, 2005). While studies have examined the relationships between sexual orientation and bully victimization, sexual orientation and substance use, and sexual orientation and suicidality independently, few have examined the combined relationships of these constructs. One study examined the relationship between all of these constructs and found that sexual minority youth were more likely to be victimized, use substances, and have a history of a suicide attempt (Garofalo et al., 1999). However, this study focused only on physical victimization and violence rather than other forms of bully

victimization. It also consisted of predominantly urban Caucasian adolescents, which may have limited the generalizability of the results to adolescents of varying ethnic backgrounds. Thus, this study will seek to explore the associations between bully victimization, substance use, suicidality, and sexual orientation in a large, nationally representative sample of adolescents.

Relationship Between Bully Victimization and Suicidality

Suicidality, a term that is used to encompass suicidal ideation, attempts, and completions, is highly prevalent among adolescents between the ages of 12 and 18. Up to 60% of high school students report suicidal ideation and 8.8% to 19% report at least one suicide attempt. Suicide is also currently the third leading cause of death among adolescents in the United States and internationally (Hinduja & Patchin, 2010; Kim & Leventhal, 2008). These statistics highlight the alarming prevalence of suicidality among adolescents.

Bully victimization is one variable that is hypothesized to increase the risk of suicidality in adolescents. Bullying is defined as "aggressive behavior in which the aggressor intentionally and repeatedly harms a weaker victim either physically and/or psychologically" (Almeida, Correia, & Marinho, 2010, p. 23). Bullying encompasses a variety of behaviors and can include verbal threats, name-calling, and physical aggression. Bullying can also include relational manipulation, such as social exclusion or spreading rumors about another individual (Vieno, Gini, & Santinello, 2011). Lifetime prevalence rates of bully victimization show that up to 50% of adolescents report being bullied at least once in their lifetime (Tharp-Taylor, Haviland, & D'Amico, 2009). Along with an elevated lifetime prevalence rate, one study found that 20% of adolescents reported being bullied on a weekly basis, while 28% reported being bullied at least once in the past six months (Hinduja & Patchin, 2010).

In addition to the high prevalence rate, adolescents who are victims of bullying experience a great deal of negative consequences. Adolescents who are victims of bullying typically possess increased levels of anxiety, depression, loneliness, isolation, school avoidance, low academic achievement, and low self-esteem (Litwiller & Brausch, 2013; Schneider, O'Donnell, Stueve, & Coulter, 2012; Vieno, Gini, & Santinello, 2010). Bully victimization has also been linked to somatic symptoms, with victimized youth reporting more headaches, abdominal pain, insomnia, and poorer perceived physical health than their non-victimized peers (Kaltiala-Heino et al., 1999). Being a victim of bullying in childhood and adolescence has also been linked to psychiatric symptoms in adulthood, including: criminality, suicide, anxiety disorders, depression, phobias, and panic disorder (Juvonen & Graham, 2014; Kaltiala-Heino et al., 1999). It is evident that victims of bullying experience immediate and prolonged distress that can lead to significant impairment during adolescence and adulthood.

Bully victimization has also been shown to be associated with suicidal ideation, self-harm behaviors, and suicide attempts among adolescents (Kaltiala-Heino et al., 1999; Klomek, et al., 2007). Compared to adolescents who do not report bully victimization, victims of bullying are four times more likely to engage in self-injurious behaviors and report suicidal ideation. They are also more than five times more likely to engage in a suicide attempt requiring medical attention (Schneider et al., 2012). Along with suicidality, being a victim of bullying in childhood or adolescence is associated with suicide attempts and completions during adulthood (Litwiller & Brausch, 2013). Thus, the negative impairment caused by bully victimization can be chronic and severe.

Generally, the frequency of bully victimization is positively associated with more severe suicidality. Frequently bullied youth report serious suicidal ideation and an increased number of

suicide attempts (Kaltiala-Heino et al., 1999; Klomek et al., 2007; Rigby & Slee, 1999).

However, it is not uncommon for infrequent bullying to also lead to severe suicidality (Kaltiala-Heino et al., 1999). Suicidal ideation and suicide attempts have been found to be positively associated with bullying regardless of the type of bullying the youth experiences (i.e. physical versus relational), or the location that the bullying takes place (i.e. at school versus over the internet) (Hinduja & Patchin, 2010; Klomek, Sourander, & Gould, 2010; Schneider et al., 2012).

One theory attempting to explain the relationship between bully victimization and suicidality in adolescence is the interpersonal theory of suicide. The interpersonal theory of suicide posits that suicidal ideation results from feelings of burden and a sense of thwarted belongingness. An individual who feels that they are a burden to others and that they do not belong may engage in self-harm behaviors to cope with these negative feelings. Once an individual becomes habituated to the physical pain and anxiety associated with self-harm, the likelihood that they will engage in more life threatening suicidal behaviors is increased (Van Orden, Witte, Cukrowicz, Braithwaite, Selby, & Joiner, 2010). Bully victimization is one interpersonal stressor that could result in feelings of burden and an overall lack of belonging. If a victim of bullying develops these feelings following bullying interactions with others, they may engage in self-harm behaviors to cope with these negative emotions. Once the youth has become habituated to self-harm, they may seek out suicide as a permeant solution to end their negative affect.

The Emotional Cascades theory is another theory that may explain the relationship between bully victimization and suicidality (Selby, Anestis, & Joiner, 2008; Selby & Joiner, 2009). This theory posits that youth who engage in suicidality, including self-injury and suicide attempts, then ruminate on their negative affect and turn to destructive behaviors to escape the

distress caused by their continued rumination. The ruminative process results in a positive feedback loop that increases emotional suffering, eventually leading to dysregulated behavior in an attempt to distract themselves from their own ruminative thoughts. Engagement in this dysregulated behavior then provides distraction from rumination and other negative emotions, which results in temporary relief. This theory may explain why victims of bullying engage in destructive behaviors, including suicidality and substance use, at a higher rate than individuals who are not bullied.

Along with the interpersonal and Emotional Cascades theories of suicide, victims of bullying may develop suicidality to cope with the negative views about the self and the public humiliation associated with victimization (Copeland, Wolke, & Costello, 2013; Rigby & Slee, 1999). Kim and Leventhal (2008) conducted a meta-analysis of 37 journal articles and found that adolescents who were at the greatest risk of suicide were those who were bullied and reported perceived peer rejection. While all 37 of the studies were cross sectional in nature making it impossible to draw causal inferences, the results support the theory that suicidality among victims of bullying may be associated with the lack of belonging that is often accompanied by victimization.

Relationship Between Bully Victimization and Substance Use

Lifetime prevalence rates of substance use in adolescence are high with 47% of adolescents reporting a history of substance use and up to 23% report current or past month use (Center for Behavioral Health Statistics and Quality, 2015). Adolescents who use substances also report significant consequences associated with their use. Common consequences of substance use are academic difficulties, symptoms of depression, and delinquency. Adolescents

who use substances are also more likely to develop a substance use disorder later in life compared to adolescents who abstain (Center for Disease Control and Prevention, 2014).

In addition to the relationship between bully victimization and suicidality, bully victimization in adolescence has also been shown to be associated with substance use (Tharp-Taylor, Haviland, & D'Amico, 2009; Vieno, Gini, & Santinello, 2011). Studies have consistently shown that involvement in bullying, both as the perpetrator and as the victim, is associated with an increased risk of alcohol and illicit drug use (Vieno, Gini, & Santinello, 2011). One longitudinal study of over 900 middle school students found that young adolescents who were victims of mental and physical bullying in middle school were more likely to have used alcohol, marijuana, inhalants, and cigarettes in the past year (Tharp-Taylor, Haviland, & D'Amico, 2009). This relationship held true even when controlling for prior substance use involvement.

The relationship between bully victimization and substance use is similar to what has been found in regard to the relationship between bully victimization and suicidality. Bully victimization has been found to predict substance use regardless of the type of bully victimization experienced or the setting in which the bullying occurs (Litwiller & Brausch, 2013). Bully victimization in childhood or adolescence has also been shown to be associated with substance use and dependence in adulthood (Kim, Catalano, Haggerty, & Abbot, 2001). This research suggests that bully victimization is not only associated with internalizing symptoms, but can also result in externalizing behaviors in both adolescence and adulthood.

The predominant theory that has been used to explain the relationship between bully victimization and substance use is that adolescents who are victims of bullying use substances to cope with the negative affect that is associated with bully victimization. The Stress Negative Affect Model (Russell & Mehrabian, 1975) provides an explanation as to why victims of

bullying may use substances to cope with victimization. This model theorizes that alcohol use is a functional behavior that acts to reduce negative affect, cope with, or escape from emotional distress. In concordance with this theory, bully victimization leads to a negative psychological state, and in an attempt to escape distress, an adolescent then uses substances to cope. In support of this theory, one study found that victims who experienced bullying on a weekly basis were more likely to report heavy levels of drinking (Kaltiala-Heino et al., 1999). It is likely that the adolescents who were bullied weekly were engaging in heavy patterns of substance use to cope with the negative affect that is associated with bully victimization.

Another possible explanation as to why some bullied adolescents engage in substance use is that they may use substances in an attempt to gain peer acceptance and to avoid future victimization (Vieno, Gini, & Santinello, 2011). In support of this theory, one study found that adolescents who drank alone were more likely to be bullied than adolescents who drank in social settings (Kuntsche & Gmel, 2004). While adolescents in both groups reported bully victimization, those who drank in social settings reported being victims of bullying significantly less than those who consumed alcohol on their own. It is possible that one reason the adolescents consumed alcohol in social settings was to fit in with their peers and to avoid future victimization.

Relationship Between Substance Use and Suicidality

Substance use is another risk factor that has been linked to suicidality (Effinger & Stewart, 2012). Substance use is associated with suicidal ideation, attempts, and completions in both clinical and community samples of adolescents (Kandel, Raveis, & Davies, 1991; Kelly, Cornelius, & Clark, 2004). Several studies have found that adolescents who report using alcohol

and illicit substances are four to five times more likely to attempt suicide than those who abstain (Garofalo et al., 1999; Kandel, Raveis, & Davies, 1991).

Substance use has been shown to be associated with suicidal ideation as well as suicide attempts (Kandel, Raveis, & Davies, 1991; Kelly, Cornelius, & Clark, 2004; Wu Hoven, Liu, Cohen, Fuller, & Shaffer, 2004). While substance use has been shown to be strongly associated with suicidal ideation, the relationship between substance use and suicide attempts is stronger. One study found that while substance use predicted suicidal ideation, adolescents who engaged in illicit substance use were eight times more likely to report a suicide attempt than their peers who did not use substances (Kandel, Raveis, & Davies, 1991). Another study found that the relationship between substance use and suicide attempts was still significant even after controlling for a variety of confounding variables, such as depression and suicidal ideation (Wu et al., 2004). This study was unique as both adolescents and their parents were interviewed about the adolescent's substance use and suicidality.

Substance Use as a Mediator Between Bully Victimization and Suicidality

It is clear that substance use is associated with both bully victimization and suicidality. Research has begun to examine the possibility that substance use mediates the relationship between bully victimization and suicidality. Similar to the Stress Negative Affect Model that has been used to explain the relationship between bully victimization and substance use, adolescents who are victims of bullying and use substances as a coping mechanism may turn to suicidal behaviors as an alternative coping strategy once substance use becomes an ineffective coping tool (Kandel, Raveis, & Davies, 1991). Substance use may also reduce an adolescent's inhibition, which could increase one's risk of engaging in suicidal behaviors (Litwiller & Brausch, 2013; Wu et al., 2004).

To test these theories, researchers have begun to hypothesize that substance use mediates the relationship between bully victimization and suicidality. The few studies that have examined this hypothesis have found that substance use is one variable that explains the relationship between bully victimization and suicidality in adolescents (Kelly, Cornelius, & Clark, 2004; Litwiler & Brausch, 2013). However, continued studies are needed to replicate and further support these findings.

Sexual Orientation as a Moderator of these Relationships

Sexual minority youth are “young people with same-sex or both-sex sexual attraction and/or partners” or “youth who self-identify as gay, lesbian, or bisexual” (Berlan et al., 2010, p. 367). Results of large-scale surveys indicate that one to three percent of adolescents identify as gay, lesbian, or bisexual, and up to ten percent of adolescents report questioning their sexual orientation (Garofalo, Wolf, Kessel, Palfrey, & DuRant, 1998). Sexual minority adolescents tend to report higher levels of emotional and behavioral difficulties compared to heterosexual youth. These difficulties are associated with both internalizing symptoms, such as depression and suicidality, and externalizing symptoms, such as substance use and delinquency (Espelage, Aragon, & Birett, 2008; Williams et al., 2005). The current study will seek to explore how sexual orientation moderates the relationships between bully victimization and substance use, bully victimization and suicidality, and substance use and suicidality.

Studies have consistently shown that sexual minority youth are more likely than their heterosexual peers to experience victimization. This victimization includes verbal bullying, such as name-calling, rumor spreading, and teasing; as well as physical victimization, such as being the victim of a sexual assault and attacks requiring medical attention (Berlan et al., 2010; Espelage, Aragon, & Birett, 2008; Schneider et al., 2012). Due to the elevated levels of

victimization and the emotional and behavioral difficulties that sexual minority youth experience, it can be hypothesized that when sexual minority youth are victims of bullying, they may present with an elevated risk of substance use and suicidality due to the additional stress they experience as minorities.

Along with experiencing high levels of bully victimization, sexual minority youth are more likely than heterosexual youth to report suicidal ideation and attempts (Espelage, Aragon, & Birett, 2008; Noell & Ochs, 2001; Remafedi et al., 1998; Russell & Joyner, 2001; Silenzio, Pena, Duberstein, Cerel, & Knox, 2007). Remafedi and colleagues (1998) conducted a large study of over 35,000 youth and found that sexual minority youth were more likely to report a recent and a lifetime history of a suicide attempt, but not suicidal ideation, compared to their heterosexual peers. However, the authors failed to control for other suicide risk factors that may influence the elevated prevalence of suicide attempts. Russell and Joyner (2001) conducted a similar large scale study and found that sexual minority youth were more likely to report suicidal ideation and attempts, even when controlling for confounding variables such as age, race, and poverty level. While epidemiological studies report that suicide is the third leading cause of death in adolescents, it is the leading cause of death among sexual minority adolescents (Williams et al., 2005). Studies have found that sexual minority youth are more than three times more likely to attempt suicide than their heterosexual peers (Garofalo et al., 1999; Remafedi et al., 1998; Russell & Joyner, 2001).

Sexual minority adolescents have also been found to be more likely to report use of alcohol, marijuana, injection drugs, amphetamines, and hallucinogens than heterosexual adolescents (Marshall et al., 2008; Noell & Ochs, 2001; Russell & Joyner, 2001). Not only are sexual minority youth more likely to report current and lifetime use of illicit substances, but their

use tends to increase at a faster rate. This type of problematic use has been shown to extend well into the young adult years (Marshall et al., 2009). Thus, it is likely that when victimized, sexual minority youth may be at an elevated risk for substance use and suicidality compared to heterosexual youth.

The minority stress theory is one theory that has been used to explain the increase in prevalence of substance use and suicidality in sexual minority adolescents. The minority stress theory posits that minorities, such as sexual minority youth, experience stressful life events early in life due to their minority status. This pressure then continues into adolescence when departures from the majority status are met with bullying and other forms of victimization (Marshall et al., 2009). Due to these disparities and the presence of stressful life events that are experienced from a young age, sexual minority youth may be more likely to cope with the victimization from peers in maladaptive ways when compared to heterosexual youth.

Few studies have examined the moderating role that sexual orientation has on the relationships between bully victimization and suicidality, and victimization and substance use. One study found that sexual minority adolescents are more likely to suffer from depression, endorse suicidal ideation, and attempt suicide due to the stress that is associated with the stigma of homosexuality (Russell & Joyner, 2001). Another study examined the differential impact of sexual orientation on the relationship between bully victimization and substance use. Results indicated that homosexual, bisexual, and adolescents questioning their sexual identity who were bullied were more likely to use alcohol and marijuana than their heterosexual peers who were also bullied (Espelage, Aragon, & Birett, 2008). This limited research suggests that sexual orientation may moderate the relationships between bully victimization and suicidality and victimization and substance use. However, more research is needed to examine this relationship

further, and to determine if it extends to the relationship between substance use and suicidality.

This research will be imperative when attempting to develop empirically based psychological treatments for sexual minority youth.

The Current Study

The purpose of the current study is to examine the relationships between bully victimization, substance use, suicidality, and sexual orientation in a large, nationally representative sample of adolescents. This study consists of nine hypotheses. I hypothesize that:

1. Bully victimization, substance use, and suicidality will each be experienced at a higher rate among sexual minority youth than heterosexual youth.

The next four hypotheses are associated with the simple mediation model, where substance use mediates the relationship between bully victimization and substance use. I hypothesize that:

2. Higher levels of bully victimization will lead to higher levels of suicidality (c path or total effect).
3. Higher levels of bully victimization will lead to higher levels of substance use (a path).
4. Higher levels of substance use will lead to higher levels of suicidality (b path).
5. The relationship between bully victimization and suicidality will be mediated by substance use (c' path or indirect effect; refer to Figure 1 for graphical representation of the mediation model).

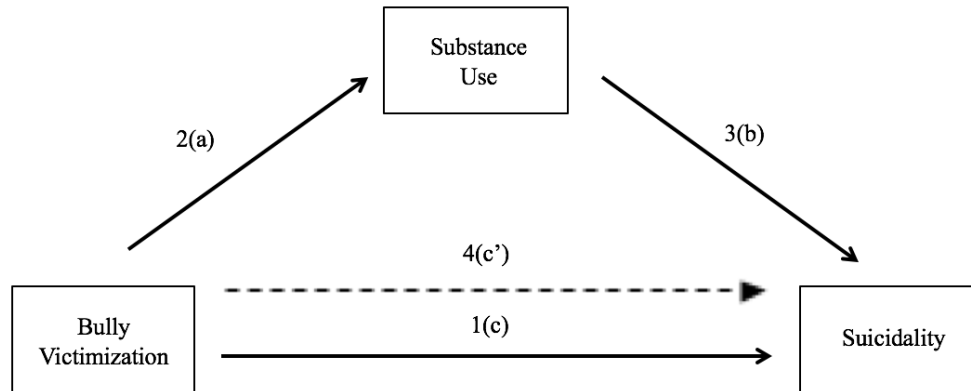


Figure 1. Graphical representation of the simple mediation model.

The next four hypotheses are associated with the full moderated mediation model. I hypothesize that:

6. The relationship between bully victimization and suicidality will be moderated by sexual orientation, such that sexual minority youth who experience bully victimization will experience proportionally higher levels of suicidality compared to heterosexual youth.
7. The relationship between bully victimization and substance use will be moderated by sexual orientation, such that sexual minority youth who experience bully victimization will engage in proportionally higher levels of substance use compared to heterosexual youth.
8. The relationship between substance use and suicidality will be moderated by sexual orientation, such that sexual minority youth who use substances will experience proportionally higher levels of suicidality compared to heterosexual youth.
9. The indirect effect of substance use will mediate the relationship between bully victimization and suicidality, and sexual orientation will moderate the relationships between bully victimization and suicidality, bully victimization and substance use,

and substance use and suicidality (refer to Figure 2 for graphical representation of the full hypothesized model).

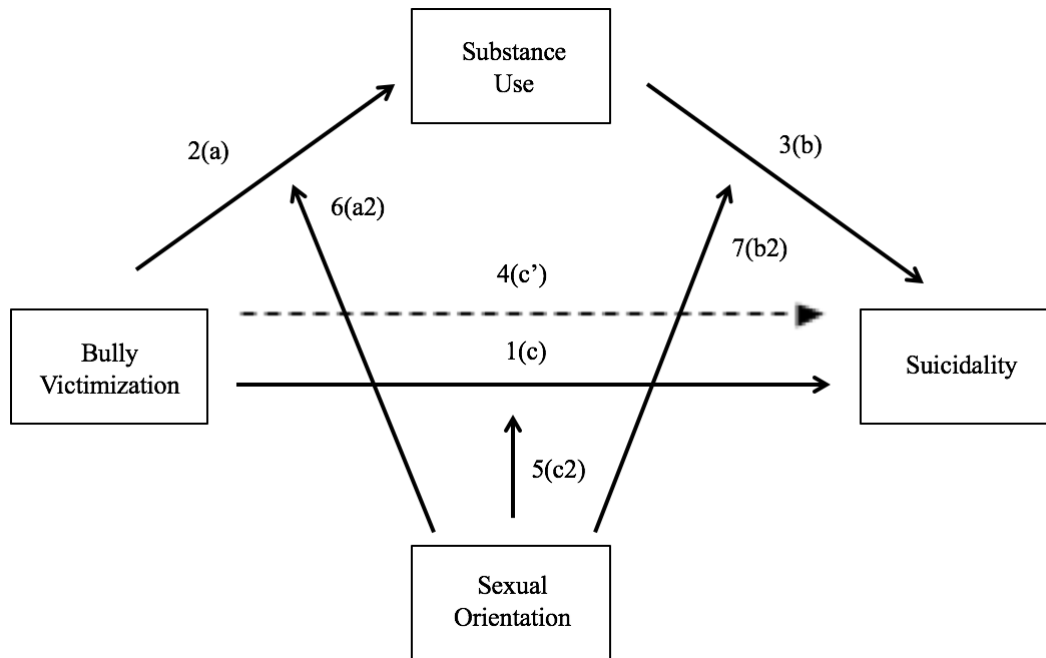


Figure 2. Graphical representation of the full moderated mediated model.

CHAPTER II

Method

Procedure

Data was drawn from the Youth Risk Behavior Surveillance System (YRBSS; Centers for Disease Control and Prevention, 2015) survey, a large-scale, anonymous, national survey examining health-risk behaviors contributing to death and disability in youth. The YRBSS was developed by the Centers for Disease Control and Prevention (CDC) in 1991 and is administered to youth at the state level biannually.

Prior to completion of the survey, participants received permission from their parent or guardian to participate. Depending on school policy, students are either required to obtain signed permission slips to participate or present exclusion slips if their guardians do not want their child to participate in the survey. A majority of the participating schools abided by the latter consent procedure. The YRBSS is administered by trained data collectors or by school personnel who are provided with a standardized script to read to participants. If the survey is administered by school personnel, the completed forms are mailed to the CDC upon completion. Information about the schools and the specific classrooms that completed the survey are recorded for the sole purpose of ensuring that the final sample is representative of the U.S. population. Participation in the survey is voluntary and responses are anonymous. Upon completion of the survey, participants sealed the questionnaire booklet and/or the Scantron answer sheet in an envelope. Full information about the YRBSS methodology is publically available (CDC, 2013). Completed data sets are made available on the CDC website (<http://www.cdc.gov/yrbss>).

In its current form, the YRBSS contains 99 multiple-choice questions. The survey contains questions about frequency of bullying victimization, engagement in substance use of all

the major drug classes, and prevalence of suicidal behaviors. Participants were also asked about a variety of demographic variables, including sexual orientation.

Participants

Adolescents who completed the survey attended a high school in the United States that was randomly selected by the CDC to complete the survey in 2015. The study consisted of 14,470 high school adolescents. Fifty percent of the participants were male. Ages ranged from 14 to 18, with a mean age of 16. About 25% of students were in each of the four high school grade levels. The sample was representative of the U.S. population in regard to race, with 45.0% identifying as non-Hispanic White, 33.5% as Hispanic, 10.9% as non-Hispanic Black, 4.8% as Multiethnic, 4.1% as Asian American, 1.1% as American Indian/Alaska Native, and .7% as Native Hawaiian/Pacific Islander.

Sample Size, Power, and Precision

A power analysis was performed to determine the sample size necessary to achieve adequate statistical power. The analysis was conducted using G*Power with an effect size of $f^2 = .15$, an alpha level of .05, and power set at .95. Setting the statistical test to a linear multiple regression, with a R^2 deviation from zero, with three predictors (independent variable, mediator, moderator), results indicated that a minimum of 119 participants would be required to have sufficient power to detect a medium effect.

Measures

Bully victimization. The bully victimization variable comprised two questions from the YRBSS that measured the frequency of bully victimization in the past year. Participants were asked if they had been bullied on school property or bullied electronically during the past 12 months. Participants selected yes or no for both these questions. A composite of the two

bullying questions was created by summing the total scores to create a total bully victimization score. The Cronbach's alpha for the scale in this study was .64 indicating low internal consistency. However, the low Cronbach's alpha value does not appear to be a limitation of the bully victimization variable. While the two items that comprise this scale involve a similar experience, they measure bully victimization in two separate and unique domains. Thus, high interrelatedness between the variables was not expected. Instead, this scale consists of two items that have been shown and are expected to be associated with similar outcomes (Hinduja & Patchin, 2010; Klomek, Sourander, & Gould, 2010; Litwiller & Brausch, 2013; Schneider et al., 2012).

Substance use. The substance use variable comprised ten questions pertaining to lifetime frequency of substance use. Participants were asked the number of times in their lifetime they had consumed alcohol, marijuana, cocaine, inhalants, heroin, methamphetamines, ecstasy, hallucinogens, synthetic marijuana, and prescription drugs. Participants selected the frequency of use of each of the ten substances on the following scale: A = 0 times, B = 1 or 2 times, C = 3 to 9 times, D = 10 to 19 times, E = 20 to 39 times, and F = 40 or more times. Due to the increased frequency of alcohol and marijuana use among adolescents, participants were given additional answer responses regarding their lifetime use: F = 40 to 99 times, G = 100 or more times. To maintain consistency across the substance use classes, the final two choices were combined to F = 40 or more times. To create a composite substance use variable, the frequency of use for each class was recoded. The following scale was created: 0 = 0 times, 1 = 1 or 2 times, 2 = 3 to 9 times, 3 = 10 to 19 times, 4 = 20 to 39 times, and 5 = 40 or more times. This was done for each of the ten drug classes. A composite variable was created by summing the frequency of

the total scores, yielding a range of possible scores of 0 to 50. The Cronbach's alpha for the total substance use scale was .80, indicating good internal consistency.

Suicidality. The suicidality variable comprised four questions pertaining to suicide. Participants were asked if, in the past 12 months, they had seriously considered attempting suicide, made a plan to attempt suicide, attempted suicide, and had a suicide attempt that required medical attention. Participants were first asked to identify if they had "seriously considered attempting suicide" and if they had "made a plan about how you would attempt suicide" in the past 12 months. Participants responded with either yes or no to these two questions. Participants were then asked the number of times they attempted suicide during the past 12 months. Answer choices were: A = 0 times, B = 1 times, C = 2 or 3 times, D = 4 or 5 times, and E = 6 or more times. Lastly, participants were asked if a suicide attempt resulted "in an injury, poisoning, or overdose that had to be treated by a doctor or nurse." Participants responded on the following scale: A = *I did not attempt suicide during the past 12 months*, B = *Yes*, and C = *No*. An ordinal variable was created based on severity. If participants reported considering suicide they were given a score of 1. If participants reported making a suicide plan they were given a score of 2. If the participants reported attempting suicide they were given a score of 3. If the participants reported a suicide attempt that required medical attention they were given a score of 4.

Sexual Orientation. The sexual orientation variable comprised one question from the YRBSS about sexual orientation. Participants were asked to self-identify as heterosexual, gay or lesbian, bisexual, or unsure. A binary variable was created, where identifying as gay or lesbian, bisexual, or unsure was coded as the sexual minority and identifying as heterosexual was coded as the sexual majority.

CHAPTER III

Results

Data Screening

Data was analyzed using the most current version of the Statistical Package for the Social Sciences (SPSS; version 25). Prior to testing each hypothesis, the data was prepared for analysis by identifying and managing missing variables and assessing for violations of the assumptions of multiple regression.

Missingness. Participants with missing data for both of the bullying items, all ten of the substance use items, and/or all four of the suicidality items were deleted. This resulted in the deletion of 1,154 (6%) of the cases. Next, missing cases for single missing bullying, substance use, and suicidality items were changed to zero to be conservative and to be able to compute the overall variables required for the analyses. Participants were completely deleted if full scale items were missing as there was no concern in the reduction of power. Additionally, imputation would result in utilizing responses from different measurements to derive a meaningful response for the target items. This approach to handling missing data is appropriate in cases where there is not a concern about power reduction (Field, 2013; Widaman, 2006).

Linearity. The assumption of linearity requires that the relationship between the independent variable (IV) and the dependent variable (DV) be linear. To test this assumption, the data was examined graphically and a best-fit line was imposed to assure that the data did not follow a quadratic or cubic trajectory. Additionally, a graph of the residuals and the predicted values on a scatter plot were plotted to assess the linearity of the relations between the variables. Data appeared to be equally distributed around a best fit line in both graphs, suggesting a linear trajectory for the dependent variable.

Homoscedasticity. The assumption of homoscedasticity refers to the variance of the residuals being constant across all values of the IV (Field, 2013). Homoscedasticity of the residuals for the dependent variable was assessed by creating a scatterplot of the standardized residuals. Upon evaluation, the data appeared to be equally distributed around a best fit line. Thus, the assumption of homoscedasticity was met.

Independence. The assumption of independence maintains that a given residual from one observation is not related to the residual of another observation. To test the serial dependence between residuals, the Durbin-Watson test was conducted (Field, 2013). Values less than 1 or greater than 3 are indicative of residual dependence. The Durbin-Watson test yielded a statistic of 0.16 for the DV, indicating a high likelihood of residual dependence. Dependence amongst the variables was expected as there are common pathways that could result in increases in all of these problem behaviors. It is also likely that common method variance occurs, as individuals in distress tend to endorse problems at an increased rate, whereas non-distressed individuals are less likely to endorse problem behaviors.

Normality. The normality assumption states that the distribution of residuals within the data should follow a normal distribution (Field, 2013). The Kolmogorov-Smirnov statistic (K-S test; Field 2005) was used to test each variable for univariate normality. The distribution of scores for the measure of bully victimization ($D [14,470] = .475, p < .001$), substance use ($D [14,470] = .242, p < .001$), and suicidality ($D [14,470] = .463, p < .001$) were significant, indicating that the scores did not follow a normal distribution. After visual inspection of the histograms, the variables all appeared to be positively skewed with a majority of the participants endorsing no bully victimization, substance use, or suicidality. Bootstrapping was used in all subsequent analyses to correct for non-normality.

Statistical Analysis

Preliminary analyses. The first set of analyses that were run were bivariate correlations between bully victimization, substance use, and suicidality. While the strengths of the relationships varied from weak to moderate, all the relationships were positive and statistically significant. Age, grade in school, race, and gender were also examined to determine if these demographic variables were correlated with the study variables. All of these variables were correlated with each of the study variables, with the exception of race and suicidality. Due to these associations, all of these demographic variables were entered as covariates in the subsequent analyses (see Table 1).

Table 1
Variable Correlations.

	Bully victimization	Substance Use	Suicidality
Bully Victimization		.130***	.330***
Substance Use			.229***
Age	-.680***	.168***	-.022*
Grade in School	-.790***	.145***	-.320***
Race	.109	.019*	.002
Gender	-.138***	.069***	-.159***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Descriptive statistics. Of the 14,470 total participants in the study, 1,704 (12%) identified as a sexual minority. Of these 1,704 participants, 1,181 (69%) were female and 509 (30%) were male. Descriptive statistics for all variables of interest for each of the sexual orientation groups are reported in Table 2. Of the sexual minority participants, 369 (22%) reported being bullied at school or at home during the past year and 303 (18%) reported being bullied in both settings. Of the heterosexual participants, 1,815 (14%) reported being bullied at school or at home during the past year and 1,023 (8%) reported being bullied in both settings. A one-way analysis of variance (ANOVA) indicated that sexual minority youth were significantly

more likely to be bullied than heterosexual youth. A one-way ANOVA indicated that sexual minority youth were also significantly more likely to use substances than heterosexual youth.

Of the sexual minority participants, 276 (16%) endorsed experiencing suicidal ideation, 348 (20%) endorsed making a plan to attempt suicide, 174 (10%) endorsed attempting suicide, and 22 (1%) endorsed a suicide attempt requiring medical attention in the past year. Of the heterosexual participants, 1,000 (8%) endorsed experiencing suicidal ideation, 940 (7%) endorsed making a plan to attempt suicide, 319 (3%) endorsed attempting suicide, and 75 (.5%) endorsed a suicide attempt requiring medical attention in the past year. A one-way ANOVA indicated that sexual minority youth were significantly more likely to endorse suicidality than heterosexual youth.

Table 2

Differences Between Sexual Minority and Heterosexual Youth on Study Variables.

	Sexual Minority Mean (SD)	Heterosexual Mean (SD)	<i>F</i> (df)
Bully Victimization	.572 (.775)	.302 (.609)	508.870 (14468)*
Substance Use	6.099 (8.048)	3.926 (5.518)	219.345 (14468)*
Suicidality	.928 (1.115)	.324 (.766)	920.041 (14468)*

Note: * $p < .001$

Main Analyses.

To test the proposed hypotheses, the PROCESS macro in SPSS was used to estimate and probe the interactions, conditional direct effect, and indirect effect (Hayes, 2013). First, a simple mediation model was used to estimate the conditional indirect effect of bully victimization on suicidality through substance use. Next, a simple moderation model was used three times to test the conditional effects of: (1) bully victimization on suicidality as a function of the moderator, sexual orientation; (2) bully victimization on substance use as a function of sexual orientation; and (3) substance use on suicidality as a function of sexual orientation. Finally, a moderated mediation was used to estimate the conditional indirect effect of bullying victimization on

suicidality through substance use as moderated by sexual orientation on the a , b , and c' paths.

Bootstrap samples were used and set to 5,000 to calculate the 99% bias corrected confidence intervals of the conditional indirect effects. Confidence intervals were raised to 99% to accommodate the multiple comparisons. Confidence intervals that did not contain zero indicated a significant indirect effect via the specific mediator.

Mediation analysis. First, a simple mediation model was used to estimate the conditional indirect effect of bully victimization on suicidality through substance use. Gender, grade in school, age, and race were entered as covariates in the model. Due to missing data, 404 cases were excluded from the analysis. Results suggest that 5% of the variance in substance use and 16% of the variance in suicidality was accounted for by the variables in the model. First, the direct effects of bully victimization on substance use and suicidality were statistically significant. That is, as bully victimization increased, substance use and suicidality also increased independently. The total indirect effect of bully victimization to suicidality through substance was also statistically significant (see Table 3). The positive valance of the indirect effect suggests that as bully victimization status increased, suicidality increased by .040 units, as a result of the effect of bully victimization status on the mediator, substance use, which in turn influenced suicidality. Therefore, we can assume that the strength of the indirect effect differs as a function of the mediator, such that bully victimization was related to increased substance use.

Table 3

Direct and Indirect Effects of Bully Victimization on Suicidality through Substance Use.

Effect	<i>b</i>	<i>SE</i>	99% <i>CI</i>
BV→SU	1.377*	.075	1.185-1.569
SU→SUIC	.029*	.001	.026-.032
Total effect	.435*	.010	.415-.455
Total indirect effect (c)	.040*	.003	.032-.050
Total direct effect of X on Y (c')	.375*	.010	.349-.401

Note. BV = bully victimization; SU = substance use; SUIC = suicidality. The significance of the indirect effects was calculated with bias-corrected confidence intervals (.99) bootstrap analysis.

* $p < .001$

Moderation analyses. Next, three simple moderation models were used to test the conditional effects of bully victimization on substance use, substance use on suicidality, and bully victimization on suicidality as a function of the moderator, sexual orientation. Gender, grade in school, age, and race were entered as covariates in the models. Due to missing data, 1,179 cases were excluded from each of the analyses. The first moderation analysis examined the conditional effect of bully victimization on substance use as a function of sexual orientation. Results suggest that 7% of the variance in substance use was accounted for by the variables in the model. Sexual orientation did moderate the relationship between bully victimization and substance use ($b = .926$, $SE = .198$, $CI_{99} = .418, 1.437$), indicating that bullied sexual minorities were proportionally more likely to use substances than bullied heterosexual youth.

The second moderation analysis examined the conditional effect of substance use on suicidality as a function of sexual orientation. Results suggest that 12% of the variance in suicidality was accounted for by the variables in the model. Sexual orientation did not moderate the relationship between substance use and suicidality ($b = -.003$, $SE = .003$, $CI_{99} = -.010, .005$).

The third moderation analysis examined the conditional effect of bully victimization on suicidality as a function of sexual orientation. Results suggest that 15% of the variance in suicidality was accounted for by the variables in the model. Sexual orientation did moderate the relationship between bully victimization and suicidality ($b = .148$, $SE = .027$, $CI_{99} = .078, .218$), indicating that bullied sexual minorities were proportionally more likely to experience suicidality than bullied heterosexual youth.

Moderated mediation analysis. Lastly, a moderated mediation model was used to estimate the conditional indirect effect of bullying victimization on suicidality through substance use as moderated by sexual orientation on the a , b , and c' paths. Due to missing data, 1,179 cases were excluded from the analysis. Results suggest that 7% of the variance in substance use and 18% of the variance in suicidality was accounted for by the variables in the model. Bully victimization was significantly associated with substance use and this relationship was moderated by sexual orientation. Bully victimization and substance use were both significantly associated with suicidality. In this model, sexual orientation moderated the relationship between bully victimization and suicidality, but not substance use and suicidality. In this model, the indirect effect of bully victimization to suicidality through substance use was significant for both heterosexual adolescents ($b = .029$, $SE = .003$, $CI_{99} = .022, .038$) and sexual minority adolescents ($b = .040$, $SE = .009$, $CI_{99} = .020, .066$). The positive valence of the indirect effects suggests that as bully victimization status increased, suicidality increased as a result of the effect of bully victimization status on the mediator, substance use, which in turn influenced suicidality. Therefore, we can assume that the strength of the indirect effect differs as a function of the mediator, such that bully victimization was related to increased substance use.

Table 4
Results of the Moderated Mediation Model

Predictor		Outcome						
		<i>M</i> (Substance Use)			<i>Y</i> (Suicidality)			
		<i>b</i>	<i>SE</i>	<i>CI</i> ₉₉		<i>b</i>	<i>SE</i>	<i>CI</i> ₉₉
X (BV)	<i>a_i</i>	1.071**	.084	.855, 1.287	<i>c'₁</i>	.328**	.011	.299, .358
M (SU)					<i>b</i>	.027**	.001	.024, .031
W (SO)		1.587**	.183	1.115, 2.060		.375**	.028	.303, .447
X (BV) * W (SO)	<i>a₂</i>	.928**	.198	.418, 1.437				
M (SU) * W (SO)					<i>b₂</i>	-.007	.003	-.014, -.000
X (BV) * W (SO)					<i>c'₂</i>	.136**	.027	.066, .206
Constant	<i>i_i</i>	-2.512**	.332	-3.368, -1.656	<i>i₂</i>	.580	.045	.465, .696

Note. BV = bully victimization; SU = substance use; SUIC = suicidality.
* $p < .01$, ** $p < .001$

CHAPTER IV

Discussion

Interpretation of Results

Results of this study supported several of the proposed hypotheses. First, three one-way ANOVA's revealed that sexual minority youth were bullied more often during the past year, reported higher levels of lifetime substance use, and experienced higher levels of suicidality in the past year compared to their heterosexual peers. These results have been supported in previous studies (Espelage, Aragon, & Birett, 2008; Williams et al., 2005) and provide additional support for the minority stress theory (Marshal et al., 2009). It is likely that due to the additional stress of being a minority and experiencing higher levels of victimization from their peers, at least partially due to their sexual orientation, sexual minority youth are at an increased risk of employing maladaptive coping strategies to cope with the negative interpersonal experience of bully victimization.

Results of a simple mediation analysis provided support for the first four hypotheses in the study. First, higher levels of bully victimization were associated with higher levels of suicidality and substance use independently. Higher levels of substance use were also associated with higher levels of suicidality. This suggests that for adolescents, as rates of bully victimization increase, so to do rates of substance use and suicidality. These relationships have been well-established (Kaltiala-Heino et al., 1999; Klomek, et al., 2007). The interpersonal theory of suicide (Van Orden et al., 2010), the Emotional Cascades theory (Selby, Anestis, & Joiner, 2008; Selby & Joiner, 2009), and the Stress Negative Affect Model (Russell & Mehrabian, 1975) are all theories that may explain the elevated rates of substance use and suicidality among victims of bullying.

Lastly, the total indirect effect of bully victimization to suicidality through substance use was statistically significant. This suggests that substance use is one possible mechanism that may explain the positive relationship between bully victimization and suicidality. This finding adds further support to the theory behind the developing literature of substance use as a mediator between bully victimization and suicidality (Kelly, Cornelius, & Clark, 2004; Litwiller & Brausch, 2013).

Results of three simple moderation analysis provided partial support for the next three hypotheses in this study. Sexual orientation moderated the relationships between bully victimization and suicidality and bully victimization and substance use. This suggests that while bully victimization was associated with both suicidality and substance use for adolescents generally, the strength of these relationships is greater for sexual minority youth than heterosexual youth. These findings also provided further support for the minority stress theory (Marshall et al., 2009). The third moderation hypothesis in this study was not supported. Sexual orientation did not moderate the relationship between substance use and suicidality. While this finding was in contrast with the hypothesis in the current study, this lack of significance can be explained by the minority stress theory. The minority stress theory when applied to sexual minority youth posits that health disparities among sexual minority youth are explained largely by environmental stressors including harassment, discrimination, and victimization (Marshall et al., 2008). While the negative experience of bully victimization was associated with proportionally greater endorsement of substance use and suicidality among the sexual minority youth in this study, this relationship was not the same for the relationship amongst substance use and suicidality. Substance use is not a social and environmental stressor, rather it is a behavior that one may engage in for a variety of potentially positive or negative reasons. In addition,

substance use has consistently been shown to be a risk factor for suicide regardless of one's cultural background in samples of adults and adolescents (Nock et al., 2008). This continues to be supported by the current study, which suggests that substance use is a risk factor for suicidality in adolescents regardless of one's cultural background, including one's sexual orientation.

The final hypothesis utilizing the full moderated mediation model was also largely supported. In this model, bully victimization was positively associated with substance use and suicidality. Substance use was also positively associated with suicidality. The total indirect effect of bully victimization to suicidality through substance use was also statistically significant. In this model, sexual orientation moderated the relationships between bully victimization and substance use and bully victimization and suicidality. Again, sexual orientation did not moderate the relationship between substance use and suicidality, although the results were approaching significance.

Implications

Results of this study have strong implications for the psychological treatment of adolescents in distress. First, results highlight the importance of addressing bully victimization when providing mental health services to adolescents presenting with suicidal ideation and risky substance use behaviors. One important intervention that should be considered is implementing a school-based anti-bullying intervention to reduce the negative impact of bully victimization. The *Olweus Bullying Prevention Program* (Olweus, 1993) is one well-known school-based bullying intervention program for youth. The goals of the program are to create a safer school environment and to improve peer relationships (Crocker Flerx et al., 2009). Many other anti-bullying interventions have been implemented in a variety of schools with promising results

(Bell, Raczysnko, & Horne, 2010; Merrell, Gueldner, Ross, & Isava, 2008). For example, the *Steps to Respect* program (Frey, Hirschstein, Snell, Edstrom, MacKenzie, & Brocerick, 2005) utilizes classroom based modules aimed at decreasing bullying behaviors and has been shown to be associated with lower rates of bullying behaviors in both self- and peer-reports (Brown, Low, Smith, & Haggerty, 2011; Frey, Hirschstein, Edstrom, & Snell, 2009). While many of the current bully prevention programs target bullying in elementary or middle schools, education and intervention at this young age may have a positive impact in reducing the prevalence of bully behaviors in adolescence. Interventions may also minimize the negative effects of bullying that linger well past childhood.

Another option for school personnel aiming to reduce the negative impact of bullying in school environments is to include presentations and discussions throughout the academic year about bullying and the negative, long-term, consequences it has on victims. Classroom meetings to discuss peer relationships could also be an economical and potentially effective strategy to begin a discussion about bullying. Parents of youth should also be encouraged to discuss the consequences of bullying with their children and the importance of abstaining from this behavior. In the current political climate where victimization and violence are unfortunately prevalent in educational environments, an open dialogue between school faculty, students, and parents must be present.

Due to the observed relationship between substance use and suicidality, school-based substance use interventions should also be utilized for students identified as at-risk substance users. Adolescents who use substances are more likely to experience negative mental health, behavioral, educational, and physical consequences than adolescents who abstain (CDC, 2014). Thus, school personnel should provide substance use services to youth identified as at-risk

substance users to reduce the negative consequences associated with substance use.

Interventions utilizing motivational enhancement therapy (Jensen, Cushing, Aylward, Craig, Sorell, & Steele, 2011; Stewart, Siebert, Arlt, Moise-Campbell, & Lehinger, 2016) and family-centered therapy (Prado et al., 2007; Stormshak & Dishion, 2009) in the school environment have significantly reduced a variety of risky and delinquent behaviors among adolescents, including substance use. School psychologists and counselors should actively research and provide evidence-based services to adolescents using substances to address the serious consequences associated with use.

Results of this study also provide evidence that sexual minority youth are at an increased risk for substance use and suicidality when bullied compared to heterosexual youth. Minority stress appears to be a risk factor for many physical and mental health conditions among this vulnerable population. Sexual minority youth report high levels of harassment and discrimination beginning from a young age which have been shown to be associated with negative mental health outcomes and high levels of risk-taking behaviors (Espelage, Aragon, & Birett, 2008; Williams et al., 2005). Therefore, when providing psychological services to sexual minority youth, it is imperative to screen for a history of victimization, substance use, and suicidality, due to the elevated exposure rates. Additionally, to ensure sexual minority youth are obtaining effective care, it is essential for providers to be aware of the levels of stress and discrimination that is being experienced among this population. Similarly, some sexual minority youth who are victimized turn to substance use to self-medicate, which is likely to result in elevated rates of substance use (Krehely, 2009; Marshal et al., 2008). Due to the relationship among substance use and suicidality, and the increased prevalence of both among sexual

minority youth, providers should assess for both when treating this population and provide treatment immediately.

Results of this study provide evidence that when bullied, sexual minority youth are more likely to engage in maladaptive coping mechanisms, specifically substance use and suicidal behaviors. Thus, providers should consider specific intervention and evidence-based treatment modalities that target the unique experiences that sexual minority youth encounter. Cognitive-behavioral therapy (CBT) is currently the recommended treatment for distressed sexual minority youth for a variety of reasons (Craig, Austin, & Alessi, 2013). First, CBT focuses on identifying and changing maladaptive coping mechanisms that an adolescent may engage in to cope with negative environmental stressors, including victimization. Second, CBT with this population typically targets maladaptive thoughts that a youth may have in response to these experiences. CBT can also target the negative thoughts or beliefs (i.e. internalized homophobia) one has about their sexual identity. One recommended targeted intervention is to incorporate Gay Affirmative Practice (GAP) into traditional CBT interventions (Craig, Austin, & Alessi, 2013). GAP views non-heterosexual preferences as a normal form of sexual identity development and affirms homosexuality or bisexuality as a positive experience and a positive form of sexual identity expression. GAP utilizes a strengths-based perspective, incorporates positive affirmation, and supports youth as they discover and embrace their sexual identity. GAP also assists youth in discovering and coping with the homophobic people and experiences that exist in their life and considers the influence of environmental factors on the presentation of mental health problems (Craig, Austin, & Alessi, 2013). Utilizing this strength-based and affirmative practice with sexual minority youth is one way in which the challenges that this population faces, which contributes to a large range of mental health and behavioral problems, can be uniquely

addressed. While research examining the effectiveness of incorporating GAP into traditional therapy is still in its infancy, results are promising (Craig, Austin, & Alessi, 2013).

In addition to intervention and assessment, health care providers should seek continued cultural competence training when providing services to sexual minority youth. Sexual minorities are not only more likely to experience victimization, discrimination, mental illness, and substance use, but they are also less likely to have health insurance coverage and are at a higher risk for chronic physical illnesses, such as cancer (Diamant & Wold, 2003; Krehely, 2009; Lick, Durso, & Johnson, 2013). Due to the unique life experiences sexual minorities face, education to ensure that culturally sensitive treatment is being provided is essential in reducing the alarming health disparities faced by this population.

Limitations

There are a few limitations to consider when interpreting the results of this study. First, the method of data collection limits the generalizability to youth who are homeless, detained, or truant from school. Because the YRBSS is administered to high school students during school hours, students who have dropped out of school or who attend infrequently are likely not accounted for in this study. Previous literature has shown that a large percentage of sexual minority youth are homeless and/or truant from school for a variety of reasons, thus, the results may not be generalizable to all sexual minorities (Birkett, Russell, & Corliss, 2014; Burton, Marshal, & Chisolm, 2014; Cochran, Stewart, Ginzler, & Cause, 2002; Corliss, Goodenow, Nichols, & Austin, 2011). The current version of the YRBSS also does not include questions about gender identify. Thus, it is unclear whether transgender or non-cis gender participants were accounted for in this study. This may limit the ability to generalize these results to this unique proportion of sexual minorities.

A second limitation is that the cross-sectional nature of the data eliminates the ability to make causal inferences amongst the variables in the study. While the relationships in this study have been found to be supported in studies employing experimental designs (Copeland, Wolke, & Costello, 2013; Kelly, Cornelius, & Clark, 2004; Klomek, Sourander, & Gould, 2010; Tharp-Taylor, Haviland, & D'Amico, 2009), more longitudinal research is needed to strengthen the ability to make causal claims about the impact that bully victimization has on substance use and suicidality and substance use and suicidality.

A third limitation is that the bully victimization variable comprised only two questions assessing bullying experienced at school and over the internet. Future studies could replicate this study design utilizing additional questions examining a larger range of bullying victimization experiences. A fourth limitation involves the reporting period utilized in the YRBSS to assess for substance use. While the variables of bully victimization and suicidality were all measured during the course of the last 12 months, the YRBSS asked participants to self-report lifetime prevalence of substance use. Therefore, there may be students who engaged in elevated levels of substance use prior to experiencing victimization. This is a limitation that was impossible to avoid due to the construction of the YRBSS. Additionally, because participants were asked about bully victimization and suicidality over the past 12 months, some participants may have engaged in suicidality prior to being bullied. It is also possible that victimization was not a contributor to suicidal behavior. Additional studies should inquire further about the reason behind suicidal behavior and employ experimental or longitudinal designs to support causal claims.

Future Directions

It is clear that bullying, substance use, and suicidality are frequently experienced in adolescence (Center for Behavioral Health Statistics and Quality, 2015; Hinduja & Patchin, 2010; Kim & Leventhal, 2008; Lewinsohn, Rohde, & Seeley, 1996; Tharp-Taylor, Haviland, & D'Amico, 2009). While the relationships between bully victimization and suicide and substance use and suicide have been frequently studied, further research is needed to establish causal claims linking together bully victimization, suicidality, and substance use as a mediator between these relationships. There are also likely other factors involved that may further explain the relationships between bully victimization and substance use and suicidality. For example, depression, anxiety, social isolation, and poorer perceived physical health are all correlates of bullying (Kaltiala-Heino et al., 1999; Litwiller & Brausch, 2013; Schneider et al., 2012; Vieno, Gini, & Santinello, 2010) that may contribute to increased substance use and suicidality. Additional research should be conducted to determine whether these factors assist in explaining these relationships. This research would assist in the development of empirically supported treatments for bullied, suicidal, and substance using adolescents.

Lastly, sexual minorities are a group that is seldom included in research designs that explore the correlates of delinquent and psychological disorders. This population appears to be at a unique risk for a variety of psychological symptoms due to their heightened minority status (Berlan et al., 2010; Marshal et al., 2009; Noell & Ochs, 2001; Remafedi et al., 1998; Williams et al., 2005). Research should continue to include sexual minorities in studies to determine if this population requires specialized or targeted interventions to account for the additional stress that is experienced throughout the lifespan at least partially due to their minority status.

References

- Almeida, A., Correia, I., & Marinho, S. (2010). Moral disengagement, normative beliefs of peer group, and attitudes regarding roles in bullying. *Journal of School Violence, 9*, 23-36. doi: 10.1080/15388220903185639
- Bell, C. D., Raczynski, K. A., & Horne, A. M. (2010). Bully busters abbreviated: Evaluation of a group-based bully intervention and prevention program. *Group Dynamics: Theory, Research, and Practice, 14*, 257-267. doi: 10.1037/10020596
- Berlan, E. D., Corliss, H. L., Field, A. E., Goodman, E., & Austin, S. B. (2010). Sexual orientation and bullying among adolescents in the growing up today study. *Journal of Adolescent Health, 46*, 366-371. doi: 10.1016/j.jadohealth.2009.10.015
- Birkett, M., Russel, S. T., & Corliss, H. L. (2014). Sexual-orientation disparities in school: The mediational role of indicators of victimization in achievement and truancy because of feeling unsafe. *American Journal of Public Health, 104*, 1124-1128. doi: 10.2105/AJPH.2013.301785
- Brown, E. C., Low, S., Smith, B. H., & Haggerty, K. P. (2011). Outcomes from a school-randomized controlled trial of Steps to Respect: A bullying prevention program. *School Psychology Review, 40*, 423-443.
- Burton, C. M., Marshal, M. P., & Chisolm, D., J. (2014). School absenteeism and mental health among sexual minority youth and heterosexual youth. *Journal of School Psychology, 52*, 37-47. doi: 10.1016/j.jsp.2013.12.001
- Center for Behavioral Health Statistics and Quality. (2015). *2014 National Survey on Drug Use and Health: Methodological summary and definitions*. Rockville, MD: Substance Abuse Services Administration.

Centers for Disease Control and Prevention. (2013). Methodology of the Youth Risk Behavior

Surveillance System – 2013. Available at www.cdc.gov/yrbs. Accessed on April 7, 2017.

Centers for Disease Control and Prevention. (2015). Youth Risk Behavior Survey Data.

Available at www.cdc.gov/yrbs. Accessed on December 12, 2016.

Centers for Disease Control and Prevention (2014). Fact Sheet- Underage Drinking. Retrieved on

December 4, 2015 from <http://www.cdc.gov/alcohol/fact-sheets/underage-drinking.htm>.

Cochran, B. N., Stewart, A. J., Ginzler, J. A., & Cauce, A. M. (2002). Challenges faced by

homeless sexual minorities: Comparison of gay, lesbian, bisexual, and transgender

homeless adolescents with their heterosexual counterparts. *American Journal of Public Health, 92*, 773-777.

Copeland, W. E., Wolke, D., Angold, A., & Costello, E. J. (2013). Adult psychiatric and suicide

outcomes of bullying and being bullied by peers on childhood and adolescence. *JAMA*

Psychiatry, 70, 419-426. doi: 10.1001/jamapsychiatry.2013.504

Corliss, H. J., Goodenow, C. S., Nichols, L., & Austin, S. B. (2011). High burden of

homelessness among sexual-minority adolescents: Findings from a representative

Massachusetts high school sample. *American Journal of Public Health, 101*, 1683-1689.

doi: 10.2105/AJPH.2011.300155

Craig, S. L., Austin, A., & Alessi, E. (2013). Gay affirmative cognitive behavioral therapy for

sexual minority youth: A clinical adaptation. *Clinical Social Work Journal, 41*, 258-266.

doi: 10.1007/s10615-012-0427-9

Crocker Flerx, V., Limber, S. P., Mullin, N., Riese, J., Snyder, M., & Olweus, D. (2009). *Class*

meetings that matter. Center City: MN, Hazelden.

Diamant, A. L., & Wold, C. (2003). Sexual orientation and variation in physical and mental

- health status among women. *Journal of Women's Health*, 12, 41-49. doi:
10.1089/154099903321154130
- Effinger, J., & Stewart, D. G. (2012). Classification of co-occurring depression and substance abuse symptoms predicts suicide attempts in adolescents. *Suicide and Life-Threatening Behavior*, 42, 353-358.
- Espelage, D. L., Aragon, S. R., & Birkett, M. (2008). Homophobic teasing, psychological outcomes, and sexual orientation among high school students: What influence do parents and schools have? *School Psychology Review*, 37, 202-216.
- Field, A. (2013). *Discovering statistics using SPSS*, 4th Ed. London: Sage Publications.
- Frey, K. S., Hirschstein, M. K., Edstrom, L. V., & Snell, J. L. (2009). Observed reductions in school bullying, nonbullying aggression, and destructive bystander behavior: A longitudinal evaluation. *Journal of Educational Psychology*, 101, 466-481. doi:
10.1037/a0013839.
- Frey, K. S., Hirschstein, M. K., Snell, J. L., Edstrom, L. V., MacKenzie, E. P., & Broderick, C. J. (2005). Reducing playground bullying and supporting beliefs: An experimental trial of the Steps to Respect program. *Developmental Psychology*, 41, 479-490. doi:
10.1037/0012-1649.41.3.479
- Garofalo, R., Wolf, R., Kessel, S., Palfrey, J., and DuRant, R. (1998). The association between health risk behaviours and sexual orientation among a school-based sample of adolescents. *Pediatrics*, 101, 895-902.
- Garofalo, R., Wolf, C., Wissow, L. S., Woods, E. R., & Goodman, E. (1999). Sexual orientation and risk of suicide attempts among a representative sample of youth. *Archives of Pediatrics and Adolescent Medicine Journal*, 153, 487-493.

- Hayes, A.F. (2013). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. New York: Guilford Press.
- Hinduja, S., & Patchin, J. W. (2010). Bullying, cyberbullying, and suicide. *Archives in Suicide Research, 14*, 206-221. doi: 10.1080/13811118.2010.494133
- Jensen, C. D., Cushing, C., Aylward, B. S., Craig, J. T., Sorell, D. M., & Steele, R. G. (2011). Effectiveness of motivational interviewing interventions for adolescent substance use behavior change: A meta-analytic review. *Consulting and Clinical Psychology, 79*, 422-440. doi: 10.1037/a0023992
- Juvonen, J., & Graham, S. (2014). Bullying in schools: The power of bullies and the plight of victims. *Annual Review of Psychology, 65*, 159-185. doi: 10.1146/annurev-psych-010213-115030
- Kaltiala-Heino, R., Rimpelä, M., Marttunen, M., Rimpelä, A., & Rantanen, P. (1999). Bullying, depression, and suicidal ideation in Finnish adolescents: School survey. *British Medical Journal, 319*, 348-351. doi: 0047-2891/91/0400-0289
- Kandel, D. B., Raveis, V. H., & Davies, M. (1991). Suicidal ideation in adolescence: Depression, substance use, and other risk factors. *Journal of Youth and Adolescence, 20*, 289-209.
- Kelly, T. M., Cornelius, J. R., & Clark, D. B. (2004). Psychiatric disorders and attempted suicide among adolescents with substance use disorders. *Drug and Alcohol Dependence, 73*, 87-97. doi: 10.1016/j.drugalcdep.2003.10.004
- Kim, M. J., Catalano, R. F., Haggerty, K. P., & Abbott, R. D. (2011). Bullying at elementary school and problem behavior in young adulthood: A study of bullying, violence, and substance use from age 11 to age 21. *Criminal Behavior and Mental Health, 21*, 136-144. doi: 10.1002/cbm.804

- Kim, Y. S., & Leventhal, B. (2008). Bullying and suicide. A review. *International Journal of Adolescent Medicine and Health*, 20, 133-154.
- Klomek, A. B., Marrocco, F., Kleinman, M., Schonfeld, I., & Gould, M. S. (2007). Bullying, depression, and suicidality in adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 46, 40-49. doi: 10.1097/01.chi.0000242237.84925.18
- Klomek, A. B., Sourander, A., & Gould, M. (2010). The association of suicide and bullying in childhood to young adulthood: A review of cross-sectional and longitudinal research findings. *Canadian Journal of Psychiatry*, 55, 282-288.
- Krehely, J. (2009). How to close the LGBT health disparities gap. *Center for American Progress*.
- Kuntsche, E. N., & Gmel, G. (2004). Emotional wellbeing and violence among social and solitary risky single occasion drinkers in adolescence. *Addiction*, 99(3), 331-339.
- Lewinsohn, P. M., Rohde, P., & Seeley, J. R. (1996). Adolescent suicidal ideation and attempts: Prevalence, risk factors, and clinical implications. *Clinical Psychology: Science and Practice*, 3, 25-46.
- Lick, D. J., Durso, L. E., & Johnson, K. L. (2013). Minority stress and physical health among sexual minorities. *Perspectives on Psychological Science*, 8, 521-548. doi: 10.1177/1745691613497965
- Litwiller, B. J., & Brausch, A. M. (2013). Cyber bullying and physical bullying in adolescent suicide: the role of violent behavior and substance use. *Journal of Youth and Adolescence*, 42, 675-684. doi: 10.1007/s10964-013-9925-5
- Marshal, M. P., Friedman, M. S., Stall, R., King, K. M., Miles, J., Gold, M. A., Bukstein, O. G., & Morse, J. Q. (2008). Sexual orientation and adolescent substance use: A meta-analysis

- and methodological review. *Addiction*, 103, 546-556. doi: 10.1111/j.1360-0443.2008.02149.x
- Marshal, M. P., Friedman, M. S., Stall, R., & Thompson, A. L. (2009). Individual trajectories of substance use in lesbian, gay and bisexual youth and heterosexual youth. *Addiction*, 104, 974-981. doi: 10.1111/j.1360-0443.2009.02531.x.
- Merrell, K. W., Gueldner, B. A., Ross, S. W., & Isava, D. M. (2008). How effective are school bullying intervention programs? A meta-analysis of intervention research. *School Psychology Quarterly*, 23, 26-42. doi: 10.1037/1045-3820.23.1.26
- Nock, M. K., Borges, G., Bromet, E. J., Alonso, J., Angermeyer, M., Beautrais, A.,...Williams, D. (2008). Cross-national prevalence and risk factors for suicidal ideation, plans and attempts. *The British Journal of Psychiatry*, 192, 98-105. doi: 10.1192/bjp.bp.107.040113
- Noell, J. W., & Ochs, L. M. (2001). Relationship of sexual orientation to substance use, suicidal ideation, suicide attempts, and other factors in a population of homeless adolescents. *Journal of Adolescent Health*, 29, 31-36. doi: S1054-139X(01)002205-1
- Olweus, D. (1993). *Bullying at school*. Oxford, UK: Blackwell Publishers Ltd.
- Prado, G., Pantin, H., Briones, E., Schwartz, S. J., Feaster, D., Huang, S.,...Szapocznik, J. (2013). A randomized controlled trial of a parent-centered intervention in preventing substance use and HIV risk behaviors in Hispanic adolescents. *Journal of Consulting and Clinical Psychology*, 75, 914-926. doi: 10.1037/0022-006x.75.6.914
- Remafedi, G., French, S., Story, M., Resnick, M. D., & Blum, R. (1998). The relationship between suicide risk and sexual orientation: Results of a population-based study. *American Journal of Public Health*, 88, 57-60.
- Rigby, K., & Slee, P. (1999). Suicidal ideation among adolescent school children, involvement in

- bully-victim problems, and perceived social support. *Suicide and Life-Threatening Behavior*, 29, 119-130. doi: 10.1111/j.1943-278X.1999.tb01050.x
- Russell, J. A., & Mehrabian, A. (1975). The mediating role of emotions in alcohol use. *Journal of Studies on Alcohol*, 36, 1508-1536.
- Russell, S. T., & Joyner, K. (2001). Adolescent sexual orientation and suicide risk: Evidence from a national study. *American Journal of Public Health*, 91, 1276-1281.
- Schneider, S. K., O'Donnell, L., Stueve, A., & Coulter, R. W. S. (2012). Cyberbullying, school bullying, and psychological distress: A regional census of high school students. *American Journal of Public Health*, 102, 171-177. doi: 10.1111/j.1943-278X.1999.tb01050.x
- Selby, E. A., Anestis, M. D., & Joiner, T. E. (2008). Understanding the relationship between emotional and behavioral dysregulation: Emotional cascades. *Behaviour Research and Therapy*, 46, 593-611. doi: 10.1016/j.brat.2008.02.002
- Selby, E. A., & Joiner, T. E. (2009). Cascades of emotion: The emergence of borderline personality disorder from emotional and behavioral dysregulation. *Review of General Psychology*, 13, 219-229. doi: 10.1037/a0015687
- Silenzio, V. M. B., Pena, J. B., Duberstein, P. R., Cerel, J., & Knox, K. L. (2007). Sexual orientation and risk factors for suicidal ideation and suicide attempts among adolescents and young adults. *American Journal of Public Health*, 97, 2017-2019. doi: 10.2105/AJPH.2006.095943
- Stewart, D. G., Siebert, E. C., Arlt, V. K., Moise-Campbell, C., & Lehinger, E. (2016). READY or not: Findings from a school-based MI intervention for adolescent substance use. *Journal of Substance Abuse Treatment*, 71, 23-29. doi: 10.1016/j.jsat.2016.08.007
- Stormshak, E. A., & Dishion, T. J. (2009). A school-based, family-centered intervention to

- prevent substance use: The family check-up. *The American Journal of Drug and Alcohol Abuse*, 35, 227-232. doi: 10.1080/00952990903005908
- Tharp-Taylor, S. Haviland, A., & D'Amico, E. J. (2009). Victimization from mental and physical bullying and substance use in early adolescence. *Addictive Behaviors*, 34, 561-567. doi: 10.1016/j.addbeh.2009.03.012
- Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner, T. E., Jr. (2010). The interpersonal theory of suicide. *Psychological Review*, 117, 575-600.
- Vieno, A., Gini, G., & Santinello, M. (2011). Different forms of bullying and their association to smoking and drinking behavior in Italian adolescents. *Journal of School Health*, 81, 393-399. doi: 10.1111/j.1746-1561.2011.00607.x
- Widaman, K. F. (2006). Missing data: What to do with or without them. *Monographs of the Society for Research in Child Development*, 71, 42-64. doi: 10.1111/j.1540-5834.2006.00404.x
- Williams, T., Connolly, J., Pepler, D., & Craig, W. (2005). Peer victimization, social support, and psychosocial adjustment of sexual minority adolescents. *Journal of Youth and Adolescence*, 34, 471-482. doi: 10.1007/s10964-005-7264-x
- Wu, P., Hoven, C. W., Liu, X., Cohen, P., Fuller, C. J., & Shaffer, D. (2004). Substance use, suicidal ideation and attempts in children and adolescents. *Suicidal and Life-Threatening Behavior*, 34, 408-420. doi: 10.1521/suli.34.4.408.53733